



**US Army Corps
of Engineers**
Omaha District

PUBLIC NOTICE

Application No:	199980291
Applicant:	Metro Wastewater Reclamation District
Waterway:	South Platte River
Issue Date:	August 13, 1999
Expiration Date:	September 12, 1999

REPLY TO:

Tri-Lakes Project Office
9307 Colorado State Hwy. 121
Littleton, CO 80123-6901
FAX (303) 979-0602

30 DAY NOTICE

**JOINT PUBLIC NOTICE
FOR PERMIT APPLICATION SUBMITTED TO
U.S. ARMY CORPS OF ENGINEERS
AND
COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT**

The District Engineer, U.S. Army Engineer District, Omaha, Nebraska is evaluating a Department of the Army permit application from **Metro Wastewater Reclamation District, 6450 York Street, Denver, CO, 80229-7499**. Permits are issued under Section 404 of the Clean Water Act which regulates the discharge of dredged or fill material in the nation's waters.

The applicant is requesting authorization to excavate and place fill material into the South Platte River in connection with the construction of reaeration and grade control facilities. The projects are located on the South Platte River in Adams County at the following locations:

- **Reaeration Structure No. 1:** Section 30, Township 2 South, Range 67 West
- **88th Avenue Grade Control:** Section 19, Township 2 South, Range 67 West
- **Reaeration Structure No. 2:** Section 19, Township 2 South, Range 67 West
- **Reaeration Structure No. 3:** Section 8, Township 2 South, Range 67 West
Section 9, Township 2 South, Range 67 West
Section 19, Township 2 South, Range 67 West

The location and project details are shown on the attached drawings.

History and Purpose

The applicant will construct low flow channel improvements in the South Platte River from approximately 4,000 feet upstream of 88th Avenue to approximately 6,200 feet upstream of the Brantner Ditch diversion.

The Metro Wastewater Reclamation District (Metro District) is a special service district that provides wastewater transmission and treatment for a major portion of the metropolitan Denver area. During periods of low flow (July-October), the Metro District's 185-million-gallon-per-day (mgd) Central Treatment Plant (Central Plant), located just upstream of the Sand Creek confluence, contributes a majority of the flow in Segment 15 of the South Platte River.

Segment 15 extends 26 miles from the headgate of the Burlington Ditch north to the confluence of Big Dry Creek and the South Platte River. Flow in the river is highly regulated by upstream flood control and raw water storage reservoirs, and the diversion of water for agricultural irrigation. During most of the year, the Burlington Ditch diverts nearly all of the upstream river flow for agricultural use resulting in a Segment 15 flow regime that is dominated by treated wastewater effluent.

Although studies have shown that Segment 15 supports a diverse and abundant aquatic community, dissolved oxygen (DO) standards based on 24-hour average national criteria, are not being attained. Low DO levels predominantly occur at nighttime during the low flow and warm weather months (July through October) and have been attributed, in part, to instream biological conversion of ammonia to nitrate.

The Metro District's 1987 Colorado Pollutant Discharge System (CPDS) permit required that the amount of ammonia in the Central Plant effluent be reduced by constructing nitrification facilities for the plant's 70-mgd North Complex. These facilities became operational in October 1990 and have had a demonstrated impact on improving Segment 15 water quality.

The 1987 CPDS permit also required that the Metro District determine the scope, nature, and cost of constructing nitrification/denitrification facilities for the plant's 115-mgd South Complex. An ammonia removal study concluded that those facilities would cost up to \$112 million to build and increase plant direct operation and maintenance costs by up to \$4.5 million annually (CH2M Hill 1989). Additionally, water quality modeling concluded that, even with full plant nitrification, about 65 percent of Segment 15 would still not meet the DO standard. Due to the large financial burden the construction of South Complex nitrification/denitrification facilities would place on the Metro District, an evaluation of nontraditional methods to improve DO levels in Segment 15 was undertaken in order to achieve the DO standard.

For purposes of definition, the basic project purpose is to improve Segment 15 DO. The overall project purpose is to enhance Segment 15 instream DO by reaeration.

Project Description

South Platte River Segment 15 Phase II improvements consist of the following:

- **Reaeration Structure 1 (RS1):** Modification of the boat chute associated with the existing structure, located 4,000 feet upstream (south) of 88th Avenue.
- **88th Avenue grade control:** Modification of the boat chute at the 88th Avenue grade control structure.

- **Reaeration Structure No. 2:** Construction of a new 3-foot high reaeration structure at the present location of Cooley Drop 2 (Cooley 2), approximately 2,800 feet downstream of 88th Avenue and 8,400 feet upstream of McKay Road.
- **Reaeration Structure No. 3:** Construction of a new 2-foot high reaeration structure 2,900 feet downstream of 104th Avenue and 6,200 feet upstream of the Brantner Ditch diversion.

The proposed reaeration structures are intended to increase in-river DO as well as increase aquatic and wetlands habitat. The following sections further describe the proposed improvements, associated environmental impacts, and mitigation measures. Excavation and fill details for all improvements are presented in the following table.

<i>Summary of Excavation and Fill Quantities¹</i>			
<i>Location</i>	<i>Material (cubic Yards)²</i>	<i>Excavation (cubic yards)</i>	<i>Fill (cubic yards)</i>
RS1	570	322	322
88th Avenue Drop Structure	2,902	2,650	2,650
RS2	13,511	9,963	7,071
RS3	11,182	2,741	2,639

¹ Figures may change upon final design/reconfiguration of boat chutes for all four improvements.

² Materials consist of gravel bedding, riprap, boulders, structural concrete, and grout. Excavation and fill quantities do not equal materials quantities.

Reaeration Structure 1 (RS1)

Proposed modifications to RS1 are focused on providing improved boater passage. Modifications includes reconfiguring the existing trapezoidal boat chute by narrowing the width, reducing the gradient by lowering the chute and adding additional boulders around the chute. As a result of these modifications, a submerged hydraulic jump will be produced at the exit of the boat chute, and slack water for boaters will be created.

Impact to Wetlands and Mitigation Wetlands in the area of RS1 consist of river-edge fringes of reed canary grass. These wetlands will not be disturbed during construction or post-construction of the modifications. Bank areas between the bike path and the channel, however, will be disturbed due to stockpiling of materials and vehicular traffic. Bank areas disturbed during construction will be revegetated with a native upland grass mixture. The actual mix of vegetation selected may change upon final installation but will draw from species which have successfully established at other sites on the South Platte River. Construction of RS1 is permitted under COE permit number 199380047. As a permit requirement, wetlands in the vicinity of RS1 are monitored and results reported to the COE annually.

88th Avenue Grade Control Structure Improvements

As with RS1, the purpose of the proposed modifications to the 88th Avenue grade control structure is to improve boater passage. Modifications include removal of the lowest structural/concrete sill in the boat chute, replacement of the loose riprap with grouted boulders, and placement of a grouted

boulder sill to minimize lateral flow into the boat chute. The result will be to provide eddy areas for resting and submergence of a reverse hydraulic jump that has developed downstream of the boat chute.

A total of approximately 2,902 cubic yards of material below the in ordinary high water mark is required to construct the modifications. This includes bedding material, riprap, boulders, structural concrete, and grout. Prior to placement of this material 2,650 cubic yards of channel substrate will be excavated.

Impact to Wetland and Mitigation No jurisdictional wetlands currently exist along the banks of the river in the vicinity of the 88th Avenue grade control structure adjacent to the boat chute as this area is covered by a riprap revetment. Bank areas, however, will be disturbed due to stockpiling of materials and vehicular traffic. Bank areas disturbed during construction will be revegetated with a native upland grass mixture. The actual mix of vegetation selected may change upon final installation but will draw from species which have successfully established at other sites on the South Platte River.

Reaeration Structure 2 (RS2) Improvements

The proposed RS2 is a roughened broad-crest weir with a 3-foot drop. A boat chute is provided for on the west side of the structure with a 20-foot bottom width. The RS2 weir crest will be constructed of reinforced concrete supported by H-piling battered to refusal into the underlying bedrock. The overall layout will take the shape of an elongated "S" with the top portion on the west side of the bank. The upstream approach will be lined with riprap having a mean diameter of 12 inches ($D_{50} = 12$ inches). The boat chute and stilling basin will be constructed of boulders to a depth of 3-feet-6-inches. A downstream riprap tailout with a length of 100 feet and a D_{50} of 24 inches will be utilized for energy dissipation and transition to a natural bed. Overbanks in the vicinity will be lined with riprap having a $D_{50} = 9$ inches. This riprap will be covered with topsoil and planted with the appropriate grasses, shrubs, and trees.

The amount of excavation and fill below the ordinary high water line required to build this structure is 9,965 and 11,090, respectively.

Fill material includes native material, bedding material, riprap, boulders, structural concrete, grout, and H-piling. Replacement of native material amounts to 2,063 cubic yards.

Impact to Wetland and Mitigation RS2 has a total of 0.3 acres of wetlands that occur in the form of river edge fringes. The wetlands support reed canarygrass, hemlock, cocklebur, and curly dock which are periodically removed by scour during high flows.

Impact to jurisdictional wetlands from RS2 is expected to be minimal for the following reasons:

- The crest of the RS2 weir will be set at an elevation of 5063.80, approximately 3 feet above the upstream invert. This elevation is approximately 1.8 feet above the normal high water line. However, due to the degraded nature of the upstream channel bank, restoration upon completion of the weir crest will result in reestablishment of typical river edge wetlands.
- Establishment of a vegetated bar wetland along the west bank downstream of the weir crest will result in a created wetlands area of far higher functional value. River edge wetlands will also be established on the east bank downstream of the reaeration structure. Created wetlands

will encompass approximately 1.32 acres and, if successful, will result in at least a 2:1 replacement over the current wetlands extent.

This will be done by creating backwater areas and increasing the irregularity of the river edge. Bottomland areas scheduled for revegetation will be planted with native wetland species.

Reaeration Structure 3 (RS3) Improvements

The proposed RS3, like RS2, is a roughened broad-crest weir, 3.9 feet high. The weir crest is layed out in the form of an elongated "S", with a boat chute located on the upper east end. The upstream approach will be lined with riprap having a mean diameter of 12 inches ($D_{50} = 12"$). The boat chute and stilling basin will be constructed of boulders to a depth of 3-feet-6-inches. A downstream riprap tailout with a length of 100 feet and a D_{50} of 24 inches will be utilized for energy dissipation and transition to a natural bed. Overbanks in the vicinity will be lined with riprap having a $D_{50} = 9$ inches. This riprap will be covered with topsoil and planted with the appropriate grasses and shrubs. The amount of excavation and fill below the ordinary high water line required to build this structure is 2,741 and 11,182, respectively. Fill material includes native material, bedding material, riprap, boulders, H-piling, structural concrete, and grout. Replacement of natural fill material amounts to 2,639 cubic yards.

Impacts to Wetland and Mitigation Wetlands in the vicinity of RS3 consist of river-edge fringes, vegetated sandbars and backwater sloughs. These areas support reed canarygrass, coyote willow, and cattails. This encompasses a total area of 2.14 acres. The wetlands on the east bank (1.46 acres) are especially well established and densely vegetated and represent a functional wetlands habitat. Other areas adjacent to the river are steep with eroded banks unable to support vegetation.

In an effort to diminish impacts to the east bank wetlands, the original orientation of the "S"-shaped drop structure was reversed so that the top of the "S" is situated along the west side of the bank (left bank looking downstream) rather than the east bank. In this way, 1.46 acres of wetlands on the east bank can be avoided and preserved during construction. Furthermore, shifting the shape of RS3 will eliminate long-term impacts to the east bank wetlands. Although impacts to east or west bank wetlands are expected to be minimal (0.1 acre), additional wetlands will be created on the west bank sandbar below the reaeration weir crest. Created wetlands will encompass approximately 0.66 acres.

Wetland Inundation

Because installation of proposed structures RS2 and RS3 will create upstream backwater pools, the potential for inundation on the existing wetlands was evaluated. An iterative approach was taken to determine the discharge at which wetland inundation would occur. This was accomplished by utilizing the BOSS International HEC-2 River Modeling System (RMS) program. The starting water surface elevation for each discharge considered was found using RMS's FLOWCALC. The RMS HEC-2 model was then run for each discharge and corresponding water surface elevation until inundation at the cross section running through the most upstream wetland (or portion of the of the most upstream wetland) occurred. Complete inundation was assumed to occur when the calculated water surface elevation matched the highest most upstream ground surface elevation of the wetlands. In the case of RS3, detailed survey data was available of several channel and wetland cross sections to identify this highest ground surface elevation. This was not the case at RS2, where 1998 topographic data was used instead.

As the results indicate, water surface elevations at inundation with the drop structures in place will not increase substantially over those modeled under existing conditions. With the exception of RS2 above the drop, water surface elevations at inundation will be approximately 0.1 feet (1.2 inches) lower than without the drop structures. Above RS2, modeling predicts that the water surface elevation will increase 0.17 feet (2.04 inches). Neither of these changes will appreciably impact the health/diversity of the existing wetlands.

Wetland Impacts

The project is expected to impact approximately 0.4 acres of wetlands, 0.3 acres at RS2 and 0.1 acres at RS3, and will be mitigated at a minimum areal ratio of 1:1.

The Colorado Department of Public Health and Environment, WQCD-GWPS-B2, 4300 Cherry Creek Drive South, Denver, Colorado 80222-1530, will review the proposed project for state certification in accordance with the provisions of Section 401 of the Clean Water Act. The certification, if issued, will express the State's opinion that the operations undertaken by the applicant will not result in a violation of applicable water quality standards. The Colorado Department of Public Health and Environment hereby incorporates this public notice as its own public notice and procedures by reference thereto.

The Colorado Department of Public Health and Environment also reviews each project with respect to the anti-degradation provisions in state regulations. For further information regarding anti-degradation provision, please contact John Farrow at the Colorado Water Quality Control Division, (303) 692-3575.

In compliance with the Endangered Species Act, a preliminary determination has been made that the described work will not affect species designated as threatened or endangered or adversely affect critical habitat. In order to complete our evaluation of this activity, comments are solicited from the U.S. Fish and Wildlife Service and other interested agencies and individuals.

The Omaha District will comply with the National Historic Preservation Act of 1966, as amended, and 36 CFR 800. We will evaluate input by the State Historic Preservation Officer and the public in response to this public notice, and we may conduct or require a reconnaissance survey of the permit area or check for unknown historic properties, if warranted.

The decision whether to issue a permit will be based on an evaluation of the probable impacts including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against the reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, wetlands, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people. In addition, the evaluation of the impact of the work on the public interest will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act (40 C.F.R. Part 230).

The Corps of Engineers is soliciting written comments from the public; Federal, state and local

agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Comments, both favorable and unfavorable, will be accepted, made a part of the record and will receive full consideration in subsequent actions on this application. Any agency or individual having an objection to the work should identify it as an objection with clear and specific reasons. All replies to the public notice should be sent to the **U. S. Army Corps of Engineers, Tri-Lakes Project Office, 9307 Colorado State Highway 121, Littleton, Colorado 80123-6901**. For additional information please contact **Mr. Scott Franklin** at (303) 979-4120.

The District Engineer will consider requests for holding a public hearing, for the purpose of gathering additional information. Before the expiration date of this notice, anyone may request, in writing, that a public hearing be held. Requests for a public hearing should state specifically the reasons for holding a public hearing, and what additional information would be obtained. Should the District Engineer decide that additional information is required and a public hearing should be held, interested parties will be notified of the date, time and location.

Comments received after the close of business on the expiration date of this public notice will not be considered.